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CASE REPORT

Facial asymmetry correction with surgical-orthodontic treatment. Case report

Corrección de asimetría facial con tratamiento ortodóncico quirúrgico. Presentación de caso clínico

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ABSTRACT

A case report of a 19-year-old female patient who attended the Orthodontics Department, Faculty of Dentistry, National Autonomous University of Mexico without any apparent pathological data is hereby presented. Upon interrogation, the patient referred to have had a previous surgical replacement of the left ear lobe. Physical examination revealed a severe facial asymmetry with mandibular deviation to the left side, straight profile, upper lip retrusion and gibbous nose. Intraorally the patient showed crowding, non-coincident dental midlines, squared arches and class III molar and canine relationship with left crossbite. Radiographically all dental organs were present and mandibular asymmetry could be observed. Cephalometric analysis showed skeletal a class III due to maxillary retrusion, vertical growth pattern, left laterognathia, proclination of upper incisors and upper lip retrusion. Treatment consisted of three phases: 1 presurgical orthodontics with 0.018" slot Alexander appliances and an archwire sequence suitable to the problem that the patient presented. Subsequently, surgical phase 2 was initiated with a sagittal osteotomy for bilateral laterognathia correction. During phase 3, postsurgical orthodontics, the case was detailed, muscular patterns were corrected and the occlusion was settled. Treatment was completed in 36 months. The profile and facial harmony were improved, the positive smile was maintained and the crossbite corrected. Bilateral canine and molar class I was obtained, the dental midlines were centered and arch form was improved as were the overbite and overjet.

RESUMEN

El objetivo de este caso clínico es demostrar la corrección de asimetría facial congénita. Se presenta caso clínico de paciente femenino de 19 años de edad que acude al Departamento de Ortodoncia de la Facultad de Odontología de la Universidad Nacional Autónoma de México, sin datos patológicos aparentes, con datos previos quirúrgicos de cirugía protésica de lóbulo auricular izquierdo. A la exploración física se observa asimetría facial marcada con desviación mandibular hacia el lado izquierdo, perfil recto, retroquelia superior y nariz gibosa. Intraoralmente muestra apiñamiento dental, líneas medias dentales no coincidentes, arcadas cuadradas y relación clase III molar y canina bilateral, con mordida cruzada lado izquierdo. Radiográficamente presenta todos los órganos dentarios y asimetría mandibular. El análisis cefalométrico mostró clase III esquelética por retrusión maxilar, patrón de crecimiento vertical; dolicofacial, laterognasia izquierda, proinclinación de incisivos superiores y retroquelia superior. El tratamiento consistió en tres fases: 1. Ortodoncia prequirúrgica llevada a cabo con aparatología Alexander con slot 0.018", con una secuencia de arcos adecuada al problema que presentaba la paciente, posteriormente iniciando la fase; 2. Quirúrgica, osteotomía sagital bilateral para la corrección de laterognasia, y fase 3. Ortodoncia postquirúrgica, donde se detalló el caso, corrigiendo patrones musculares y de asentamiento oclusal. El tratamiento se terminó a 36 meses, logrando mejorar el perfil y la armonía facial, se conservó la sonrisa positiva, se eliminó la mordida cruzada, obteniendo clase I canina y molar bilateral, se centraron las líneas medias dentales, mejoró la forma de arcadas y sobremordida vertical y horizontal.

Key words: Laterognathia, orthognathic surgery, class III malocclusion, facial asymmetry.
Palabras clave: Laterognasia, cirugía ortognática, maloclusión clase II, asimetría facial.

INTRODUCTION

Facial asymmetries and dento-skeletal deformities are the result of the complex interaction of many factors that influence development and growth.[1] They may be caused by discrepancies in size and position between cranial base and maxilla, between cranial base and mandible or between maxilla and mandible as well as the rest of the craniofacial massif.[1]

A deformity is the abnormal shape or posture of a body part due to non-disruptive mechanical forces. It

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appears during late fetal life due to mechanical forces often affecting the muscular-skeletal system. This condition may be isolated affecting only the mandible, extend to multiple craniofacial structures unilaterally or bilaterally or be expressed in the vertical, horizontal or transverse facial plane.[2]

Treatment for dento-skeletal deformities is performed through orthopaedics, orthodontics, orthognathic surgery or a combination of these. Approximately four per cent of the population has a dentofacial deformity that requires orthodontic-surgical treatment for its correction. The most common indications for surgical treatment are severe skeletal class II and III cases as well as vertical skeletal discrepancies in patients who are no longer in an active growth stage.[2] Skeletal class III patients are a large proportion of those who seek orthodontic-surgical treatment. Proffit et al reported that 20% of surgical patients have mandibular excess, 17% have maxillary retrusion and 10% have both. Skeletal class III patients are more likely to seek a clinical evaluation than skeletal class II patients.[3] The majority of patients with class III malocclusions present dentoalveolar and skeletal problems and only a minority of cases may be treated with orthodontics only. Nevertheless, patients with severe skeletal class III discrepancies are often treated with orthognathic surgery of the maxilla, mandible or both in combination with orthodontic treatment.[2-4]

In cases with facial asymmetries it is often intended to correct the transverse problem with orthodontics only, without success and in many of these patients relapse is common.[5]

CASE PRESENTATION

A case report of a female patient of 19 years of age is hereby presented. She attended the Orthodontics Clinic at the Division of Postgraduate Studies and Research of the National Autonomous University of Mexico with the following chief concern: «I have a mandibular deviation». She denied having any medical family history of importance and referred a surgical background of a prosthetic surgery in her left ear lobe. She was considered a healthy patient.

Clinical assessment:

Patient with oval face, positive smile; displays 20% of the upper tooth crowns. She had a decreased lower facial third in relation to the middle third, facial asymmetry, deficient anterior projection of the facial middle third, mentalis hypertonicity, thick lips, facial midline did not match the dental and the chin was deviated to the left side.

The patient presented a straight profile, gibbous nose, lower lip protrusion, obtuse (open) nasolabial angle and lip competence *(Figure 1)*.

Intraorally, there was dental crowding, dental rotations, non-coincident dental midlines, square-shaped arches and a bilateral class III molar and canine relationship with posterior cross bite on the left side.

Model analysis revealed a tooth-bone discrepancy of -10.5 mm on the upper arch and in the lower, -5.5 mm. Overbite was 3 mm and overjet, 2 mm *(Figure 2)*.

In the panoramic radiograph the presence of 32 teeth was observed, a 1:2 crown-root ratio, good bony ridge level, asymmetry of the mandibular ramus and no sign of temporomandibular joint disease *(Figure 3)*.

Cephalometric analysis revealed a skeletal class III malocclusion due to maxillary retrusion, a vertical growth pattern, dolichofacial biotype, left laterognathia,

Figure 1.

Facial photographs: frontal, right profile and smile.